

NEWSLINE

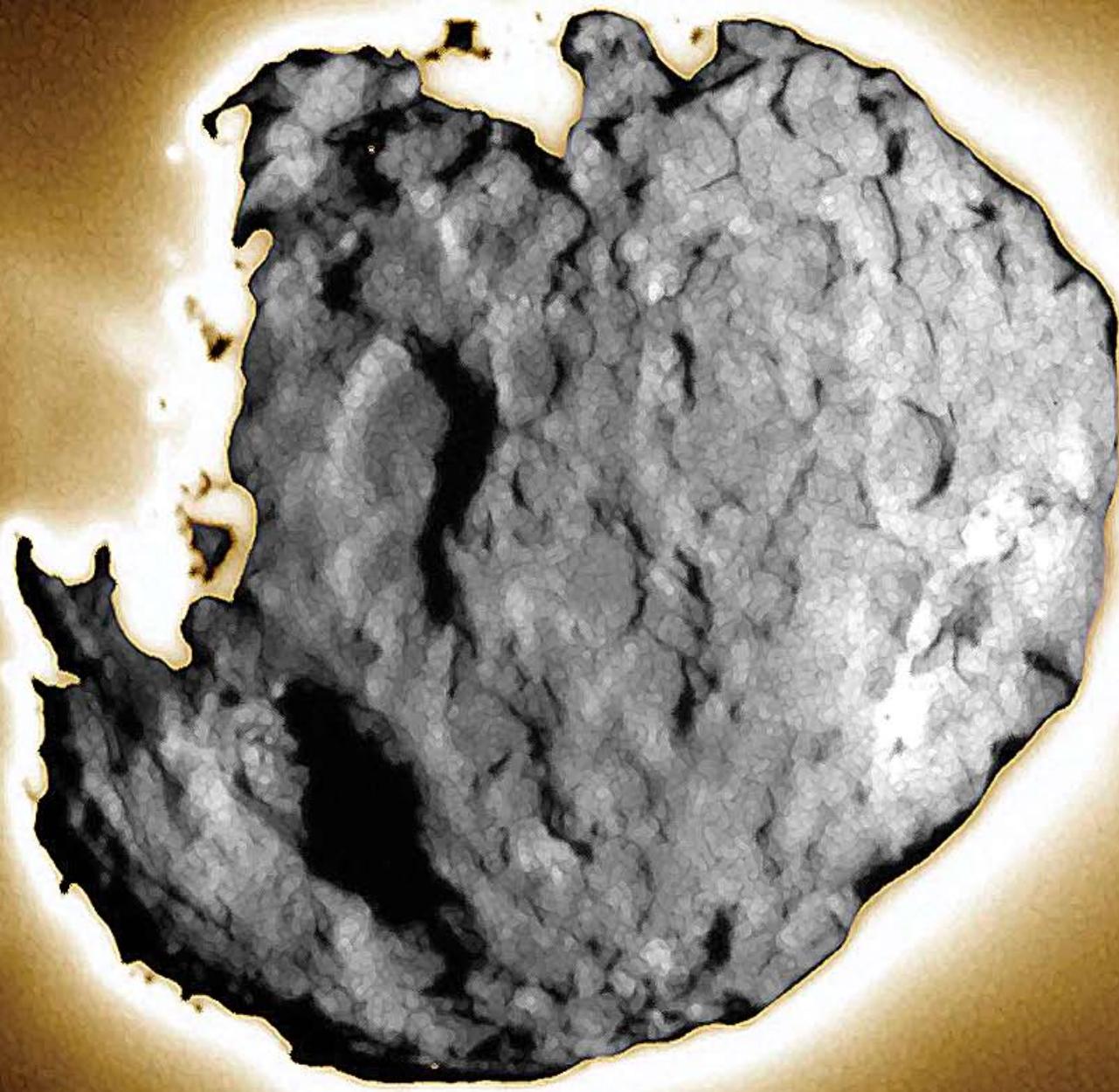
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STARDUST REVEALED

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Newsline publication moves to the Web

By Don Johnston
Newsline staff
writer

Newsline is no stranger to the vicissitudes of history, and next week this venerable Laboratory newspaper will shed its newsprint and metamorphose into an all-electronic publication.

This represents just the latest evolution for the Laboratory periodical, which first appeared as a monthly in September 1970 for employees of what was then called Lawrence Radiation Laboratory. The cover story was about a U.S. Readiness Program rocket test over the Johnston Atoll in the South Pacific, a test designed to ensure the nation's preparedness to resume atmospheric testing should it become necessary (atmospheric testing was banned by treaty in the early 1960s).

Newsline was the first publication dedicated exclusively to Livermore Lab news. Before Newsline, news about the Livermore Laboratory was provided by the *Magnet*, published out of the Lawrence Berkeley laboratory. The *Magnet* was started in 1957 for Berkeley employees and included a page of Livermore news.

As the Livermore and Berkeley laboratories began to establish separate identities, it became clear

that this Laboratory needed a separate communication vehicle. Initially a monthly mailed to employees' homes, Newsline covered science and technology, directorate and other organizational changes, awards, promotions and employee accomplishments.

By 1976, the Laboratory had grown to the point where the need for more frequent news updates led to the creation of the *Newsline Weekly Bulletin*. The bulletin also incorporated the one-page classified ad sheet published by the employee association.

Ken Rhodie, manager of the Lab communications office that published Newsline, wrote in the inaugural March 3, 1976 edition that a weekly publication was needed to keep employees updated on news from Washington, programmatic changes, services awards, employee service association activities and news of Lab recreational groups.

Newsline became not just a newspaper, but a Laboratory communication strategy that included monthly, weekly and daily communications, Rhodie recalls. "The idea was to build a Newsline package that included publications, a news phone line and a *Newsline Tuesday A.M. Update* for managers."

Newsline also continued as a monthly employee magazine until 1982 with more in-depth articles highlighting science and technology and profiling Lab researchers and staff. But because of confusion between Newsline and the *Weekly Bulletin*, the

monthly magazine was reduced in frequency and renamed *The Quarterly*. The *Weekly Bulletin* was redesigned to be more readable and re-launched June 24, 1987 as the weekly *Newsline* employees know today. *The Quarterly* magazine was discontinued in late 1992.

As Lab programs and the population grew, communication surveys conducted by the Communications and Public Affairs Office indicated employees wanted more timely delivery of news. When John Nuckolls became Lab director in 1988, Newsline went to twice weekly publication, every Tuesday and Friday. Twice weekly publication continued until 1996 when Public Affairs launched the Lab's first e-mail news bulletin and Newsline reverted to weekly publication.

The creation of the daily Web-based *NewsOnLine* in late 2004 led Newsline publication to be further reduced to every other week for calendar year 2006. But with the awarding of a new contract to manage the Laboratory to Lawrence Livermore National Security, LLC in May 2007, Newsline returned to weekly publication.

Starting next week, Newsline will no longer be printed and distributed to LLNL mailstops or mailed to retirees, but will appear on the Laboratory's external Website. Details on how to access Newsline will be published in *NewsOnLine*.



Newsline's changing flag is indicative of its evolution since the 70s.

Reducing waste paper helps cut costs

Even in this age of electronic communication, the idea of the paperless office remains elusive as business organizations, including the Laboratory, continue to generate enormous quantities of waste paper.

Currently, about 150 metric tons of office paper is collected for recycling every year at the Lab. An additional 100 metric tons of classified paper is sent for recycling after being processed onsite. Magazines, newspapers and phone books contribute another 28 metric tons. This means that every year, LLNL recycles sufficient waste paper products to blanket roughly seven square miles.

"Recycling and otherwise reducing the waste we generate, whether it's paper or other items, is not only better for the environment, it's a sound business practice that can help bring down operating costs," said Jennifer Doman, Pollution Prevention team leader.

This week marks the last publication of a printed hard copy of *Newsline*. Starting

next week, *Newsline* will be a Web-based weekly publication. While this represents a big change from the past, the transition from paper to electronic media offers many benefits, both fiscal and environmental. Last year, 40 editions of *Newsline* were printed, with 15,690 copies per edition, which translates into 33,000 pounds, or 15 metric tons, of paper waste sent to recycle bins or the landfill.

So in addition to eliminating close to \$100,000 in printing, labeling, distribution and mailing costs, halting *Newsline* printing will eliminate 15 metric tons of waste paper.

And this does not include the added 11 percent to 18 percent newsprint waste typically generated during the printing process at the offsite print plant. Although California regulations require commercial newsprint to contain at least 40 percent recycled content, that still means natural resources, such as wood and fiber, are consumed in its manufacture.

"During this period of change we hope

"Recycling and otherwise reducing the waste we generate, whether it's paper or other items, is not only better for the environment, it's a sound business practice that can help bring down operating costs."

— Jennifer Doman

to raise awareness of the opportunities to both save money and help the environment by initiatives such as reducing waste paper," Doman said. "Before you print that next document, think about whether or not you can save paper, toner and energy by creating a PDF or reading it online instead."

The Pollution Prevention team assists Laboratory programs with waste reduction and other efforts that can have both an environmental and a cost benefit. Additional information about recycling and waste reduction is available from the Pollution Prevention Website (<http://www-p2.llnl.gov/>); e-mail help line p2help@llnl.gov; and the Earth Hotline (E-ARTH or 3-2784).

IN BRIEF

Pattiz appointed chair of laboratory governing boards

The University of California Board of Regents last week selected Norman Pattiz as chairman of the Board of Governors of both Los Alamos National Security, LLC (LANS) and Lawrence Livermore National Security, LLC (LLNS).

UC Board of Regents Chairman Richard Blum and UC President Robert Dynes jointly recommended his appointment. Pattiz's appointment is effective March 1, upon the resignation of current chairman Gerald Parsky.

"Norm Pattiz will bring great business acumen and proven leadership skill to the governance of these laboratories," Blum said. "His tremendous experience in the corporate sector and with government, as well as his understanding of the laboratories and the important work they do, will make a substantial contribution to their effective management."

Pattiz, a member of the UC Board of Re-

gents since 2001, is serving a term set to expire in March 2014. Pattiz has served as a member of the Regents' Committee on Oversight of the Department of Energy Laboratories since 2001 and as its chairman since 2007. In addition, he has served as a university member advisory governor to the boards of LANS and LLNS since 2007.

"I am pleased to assume this responsibility and to continue to work closely with the corporate partners and both labs to ensure strong and effective management of these important facilities," Pattiz said. "Los Alamos and Livermore national laboratories and the people who work there are an incredible scientific, technological and national security resource to our country, and I look forward to



Norman Pattiz

working with them."

Pattiz is the founder and chairman of Westwood One, America's largest radio network company, which owns, manages or distributes NBC Radio Network, CBS Radio Network, the Metro Networks and CNN Radio. In addition, Pattiz is a former member of the Broadcasting Board of Governors (BBG). Pattiz is past president of the Broadcast Education Association.

LANS and LLNS are each governed by a Board of Governors. Each Board of Governors includes a six-person Executive Committee. Under the LLC agreements between the university and its corporate partners, the university is entitled to appoint three individuals to the Executive Committee of each LLC, including the chairman of the Board of Governors.

Smolen receives overview of national security programs



Robert Smolen, deputy administrator for Defense Programs within the National Nuclear Security Administration visited the Laboratory Thursday to meet with LLNL and Livermore Site Office employees.

He received briefings on stockpile stewardship, work-for-others,

the National Ignition Facility, the Advance Simulation Computing Program and work within the High Explosives Applications Facility (HEAF).

He also held an all-hands meeting with LSO employees and toured Sandia.

NSNA Public Affairs Director David Campbell, LSO Manager Camille Yuan-Soo Hoo, Robert Smolen and LLNL's Bruce Goodwin and George Sakaldasis.

JACQUELINE MCBRIDE/NEWSLINE

New pedestrian badge check portal at West Gate Drive



A new portal opened this week at the West Gate Drive entrance.

A recent project to install a new badge check portal located on the north side of West Gate Drive is complete. This project has solved several serious traffic safety concerns associated with the West Gate Drive area.

The new portal opened Tuesday. The area has been enhanced to include not only the portal and shared-use pathway supporting pedestrian and personal bicycle use, but also an area to park

Laboratory bicycles for employees leaving work.

The separation of vehicles and pedestrians in this area has created a much safer environment for employees. Employees entering and exiting the Laboratory on their personal bicycles may continue to share the road with vehicles. Drivers are reminded to use extra caution at the Laboratory's entrances and exits when cyclists are present.

SCIENCE NEWS

Gas gun that blazed new scientific trails shut down

By David Schwoegler
Newsline staff writer

“The good news is that the legacy of these powerful devices lives on at JASPER and elsewhere.”

– Neil Holmes

Photos by
David Schwoegler
Newsline

After more than 30 years of continuous operations, Jan. 11 marked the final experiments in the Laboratory's Bldg. 341 gas-gun facilities. This operation used a 28 mm-bore, two-stage, light-gas gun, capable of accelerating 15-gram projectiles at speeds up to eight kilometers per second, or about 18,000 miles per hour. With these velocities, for about a millionth of a second, researchers can achieve pressures in excess of six Millibar. That equates to six million times atmospheric pressure, or 80,000,000 pounds per square inch.

Although to most people, a millionth of a second isn't very long, this brief interval provides plenty of time to make measurements that determine material properties, like pressure and density, to within 1 percent.

Housed within the same building is a smaller, convertible gas gun. It operates as a single-stage gas gun, producing velocities up to one kilometer per second; or as a two-stage gun, reaching up to about four km/s. But what truly distinguishes this facility has been the immense range of measurements made possible by novel — and often unique — diagnostics: electrical conductivity; temperature; pressure; density; velocity; energy; many types of optical spectroscopy; x-radiography; imaging; and recovery using metals, fluids, explosives, and gases over an initial temperature range from 4-1000 degrees Kelvin.

The program has been immensely successful, the recipient of multiple scientific awards and the subject of hundreds of publications. The results from Physical Science's gas guns have produced a broad and profound influence on high-pressure physics. A few highlights include: fundamental measurements in metals leading to high-pressure standards for shock and static compression; the discovery of metallic hydrogen; the first dynamic measurements on the structure of liquid water; the first dynamic measurements of crystal structure at Millibar pressures; and the temperature and pressure of iron in the Earth's core. In addition, researchers have proven to be prolific, completing 100



Neil Holmes, center, surrounded by members of the gas gun facility team.

shots a year, according to physicist Neil Holmes.

Experiments conducted using the guns measured the high-pressure properties of cryogenic (low-temperature) molecular fluids like oxygen, nitrogen, methane, ammonia and hydrogen. These measurements helped to model high explosives and the atmospheres of gas-giant planets such as Jupiter, Saturn and Uranus, and the planets circling stars other than our sun.

“The large two-stage gun in Bldg. 341 was the model the JASPER facility used for plutonium experiments at the Nevada Test Site. The success of that program is the direct result of the three decades of research and development at the Bldg. 341 gas-gun facilities,” Holmes said.

While Bldg. 341 has been noted repeatedly as a source of beneficial equations-of-state research, that structure has become a two-edge sword that has effectively silenced the two gas guns therein.

According to Holmes, the building once housed not only the gas guns, but also a host of other specialty tenants that included the massive four-inch-bore gun that now resides in the High Explosives Application Facility. One by one, the building's other occupants have moved elsewhere, leaving gas gun researchers with a massive physical facility that they can no longer afford, despite the success and importance of their experiments.

“The good news is,” Holmes said, “that the legacy of these powerful devices lives on at JASPER and elsewhere.”



A view down the 30 meter (nearly 100 foot) length of the large two-stage gun in Bldg. 341.



Sam Weaver closes the final interlock for an experiment at the small two-stage gun.



Data from the last Bldg. 341 experiment shows that it succeeded. The data show the response of a copper sample to a ramp wave lasting 1 microsecond.



Physicist Reed Patterson adjusts the target alignment for an experiment on the small (1/3 scale) two-stage gun.



A typical target assembly during installation for an experiment at the small gun.

SCIENCE NEWS

Fireworks illuminate Lab detection system success

Nancy Garcia
Newsline staff writer

The fireworks display over Livermore on Independence Day aided another less noticeable patriotic endeavor. It provided a real-world workout for a Laboratory counterterrorism sniffer, which ably detected the airborne aftermath.

“We would like to expand it to be a full environmental monitor,” says George Farquar, a staff scientist who mentored Department of Homeland Security interns on the project during his final days as a Laboratory postdoc. “We found a lot of really interesting particles.”

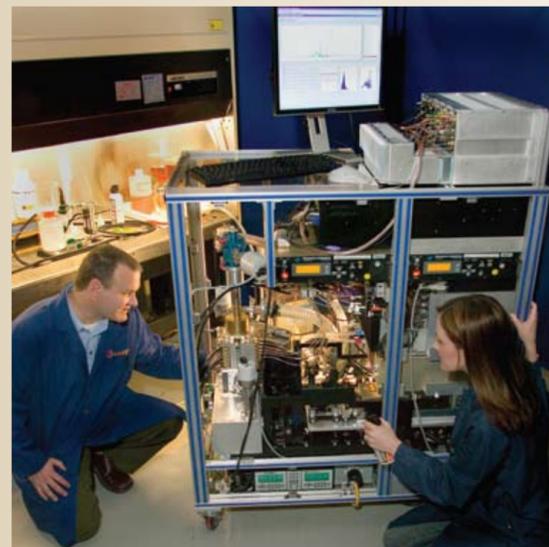
The event was a chance to see how well the Single-Particle Aerosol Mass Spectrometer (SPAMS) could pick out trace compounds from a complex background mixture. The device takes in 400 liters of air every minute, concentrating the sample to one liter, and then sizing and identifying single particles.

The particle stream is focused in the instrument, which determines the size of each micron-sized particle by measuring its velocity in a sizing and tracking region. A laser ionizes the particle stream. The fragments are detected based on their mass in an electric field to a degree that is characteristic of their identity.

Because both weight and charge are recorded, mass spectrometry can distinguish specific isotopes. That creates the possibility of being able to attribute the source of radionuclides from a dirty bomb for forensics purposes. “A dirty bomb is effectively metal isotopes,” Farquar said.

“Metals are straightforward to detect, because they can't fragment any further.”

Metal oxides or salts are used in fireworks to produce light in the traditional red, white and



JACQUELINE MCBRIDE/NEWSLINE

George Farquar, left, and Audrey Martin examine the Single-Particle Aerosol Mass Spectrometer (SPAMS).

blue, as well as green or yellow. Sulfur and aluminum also are used to produce glitter effects.

The overnight monitoring on the Fourth of July not only picked up the metal-based colorants, it even spotted other components used in propellants. A trace amount of lead (72 particles in 12 hours) also was observed. Although manufacture of formulations using lead are not permitted, the uptick may have accidentally come from imported pyrotechnic devices that present crackling star shapes, or from metal-core wicks of hand-held sparklers.

The research builds upon previous studies elsewhere to observe mass spectra of fireworks aerosols. “This is a dramatically different instrument,” Farquar said. During its development, its size has been substantially reduced and automated software implemented to speed data analysis.

The device detects several hundred particles a second. Of those, perhaps 20 are selected for analysis based on pre-existing criteria.

“We can detect both positive and negative ions,” Farquar said. “We get a much better understanding of particle distribution.”

Like many airborne detectors under development for Homeland Security applications, the device is periodically fielded for evaluation, with the most recent trial coming up in a couple of months to determine its efficiency in sensing simulated threat agents.

“We want to understand how we can use this technology to solve a lot of problems,” Farquar said. “If you can have a detector that's general and continuous, you can check for hazards, pollutant levels and contaminants.”

Other potential uses abound. For instance, a modification might allow the instrument to automatically measure the levels of plankton churned into the spray in the wake of ships, giving a sense of the status of the ocean creatures that keep global warming in check by taking carbon dioxide out of the atmosphere.

Intern Nicole Sadler, a UC Davis biology student, plans to work over her winter break preparing the results for publication. Also tackling the project under Farquar's direction over the summer was intern Zofia Koscielniak of Carnegie Mellon.

Martin Luther King speaker delivers a call to serve

Robert Jennings, president of Alabama A&M University, visited the Lab Thursday to discuss “Living the American Dream,” in honor of Martin Luther King Jr., during a noon presentation.

Jennings began by speaking of change and acknowledging the Lab's new management. He encouraged the audience to “Hang in there. Change occurs,” he said. “There is a saying: anything that doesn't change is likely to be dead; and what is dead ought to be buried.”

Jennings noted that this year marks the observance of Martin Luther King's 79th birthday — a celebration in which more than 100 countries participates, bringing together a variety of cultures.

JACQUELINE MCBRIDE/NEWSLINE



SCIENCE NEWS

Stardust's surprising treasure trove

By Anne M. Stark
Newsline staff writer

Contrary to expectations for a small icy body, much of the comet dust returned by the Stardust mission formed very close to the young sun and was altered from the solar system's early materials.

When the Stardust mission returned to Earth with samples from the comet Wild 2 in 2006, scientists knew the material would provide new clues about the formation of our solar system, but they didn't know exactly how.

New research by scientists at the Laboratory and collaborators reveals that, in addition to containing material that formed very close to the young sun, the dust from Wild 2 also is missing ingredients that would be expected in comet dust. Surprisingly, the Wild 2 comet sample better resembles a meteorite from the asteroid belt rather than an ancient, unaltered comet.

Comets are expected to contain large amounts of the most primitive material in the solar system, a treasure trove of stardust from other stars and other ancient materials. But in the case of Wild 2, that simply is not the case.

By comparing the Stardust samples to cometary interplanetary dust particles (CP IDPs), the team found that two silicate materials normally found in cometary IDPs, together with other primitive materials including presolar stardust grains from other stars, have not been found in the quantity that might be expected in a Kuiper Belt comet like Wild 2. The high-speed capture of the Stardust particles may be partly responsible; but extra refractory components that formed in the inner solar nebula within a few astronomical units of the sun, indicate that the stardust material resembles chondritic meteorites from the asteroid belt.

"The material is a lot less primitive and more altered than materials we have gathered through high altitude capture in our own stratosphere from a variety of comets," said LLNL's Hope Ishii, lead author of the research that appears in



CREDIT: NASA

Stardust capsule return.

today's (Jan. 25) edition of the journal, *Science*. "As a whole, the samples look more asteroidal than cometary."

Because of its tail formed by vaporizing ices, Wild 2 is, by definition, a comet. "It's a reminder that we can't make black and white distinctions between asteroids and comets," Ishii said. "There is a continuum between them."

The surprising findings contradict researchers' initial expectations for a comet that spent most of its life orbiting in the Kuiper Belt, beyond Neptune. In 1974, Wild 2 had a close encounter with Jupiter that placed it

into its current orbit much closer to Earth.

Comets formed beyond the so-called frost line where water and other volatiles existed as ices. Because of their setting far from the sun, they have been viewed as a virtual freezer, preserving the original preliminary ingredients of the solar system's formation 4.6 billion years ago. The Stardust spacecraft traveled a total of seven years to reach Wild 2 and returned to Earth in January 2006 with a cargo of tiny particles for scientist to analyze.

This is one of the first studies to closely compare Stardust particles to CP IDPs. This class of IDPs is believed to contain the most primitive and unaltered fraction of the primordial material from which our planets and other solar system objects formed. They are highly enriched in isotopically anomalous organic and inorganic outer solar nebula materials inherited — through the pre-solar molecular cloud — from dust produced around other stars. IDPs are gathered in the stratosphere by high altitude airplanes (ER-2s and WB-57s) that are typically more than 50 years old.

The Livermore team specifically searched for two silicate materials in Stardust that are believed to be unique to cometary IDPs: amorphous silicates known as GEMS (glass with embedded metal and sulfides); and sliver-like whiskers of

the crystalline silicate enstatite (a rock-forming mineral). Surprisingly, the team found only a single enstatite whisker in the Stardust samples, and it had the wrong crystallographic orientation — a form typical of terrestrial and asteroidal enstatite.

Objects similar to GEMS were found, but Ishii and the team showed they were actually created during the high speed 6-kilometer per second impact of Wild 2 comet dust with the Stardust spacecraft's collector by making similar material in the laboratory.

In analyzing the Stardust material, Ishii's team used Livermore's SuperSTEM (scanning transmission electron microscope). Ishii said future analyses should focus on larger-grained materials, so-called micro-rocks, which suffered less alteration.

"The material found in primitive objects just wasn't there in the samples," said John Bradley, another LLNL author. "I think this is science in action. It's really exciting because it's just not what we expected."

"Wild 2 doesn't look like what we thought all comets should look like," Ishii said. "The Stardust mission was a real success because without it, we would never have learned these things about our solar system. The sample return was vital for us to continue to unravel how our solar system formed and evolved."

In addition to Ishii and Bradley, other LLNL researchers include Zu Rong Dai, Miaofang Chi and Nigel Browning. Other institutions involved include UC Davis, the Natural History Museum of London, the University of Kent and the Netherlands Organization for Scientific Research (NWO).

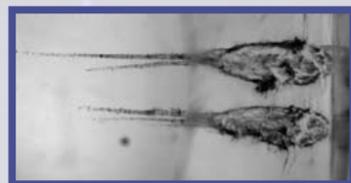
Stardust is a part of NASA's series of Discovery missions and is managed by the Jet Propulsion Laboratory. Stardust launched in February 1999 and set off on three giant loops around the sun. It began collecting interstellar dust in 2000 and met Wild 2 in January 2004, when the spacecraft was slammed by thousands of comet particles including some the size of BBs that could have compromised the mission. It is the first spacecraft to safely make it back to Earth with cometary dust particles in tow.

"The sample return was vital for us to continue to unravel how our solar system formed and evolved."

— Hope Ishii



Hope Ishii (right) displays cometary and interplanetary dust samples from the NASA Stardust mission to members of the media during a press event in 2006.



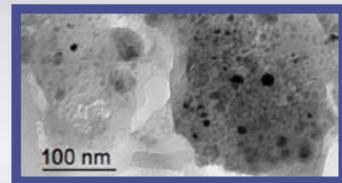
CREDIT: NASA

Stardust impact tracks created by comet dust entering silica aerogel at 6 km/s.



CREDIT: HOPE ISHII, LLNL

An impact track generated by a light gas gun shot of sulfide particles into aerogel at Stardust impact speed.



CREDIT: JOHN BRADLEY, LLNL

One of the silicate material found in cometary IDPs are GEMS (glass embedded with metals and sulfides). Similar structures are found in Stardust impact tracks in aerogel but also in light gas gun shots of sulfide in aerogel at the Stardust impact speed (see left).

Analysis of stardust samples reveals startling insights

Noble gas analysis has shown that samples of the material picked up during the NASA Stardust mission indicate that parts of the comet Wild 2 actually formed in an area close to the sun.

Recent research by an international collaboration including former Livermore researcher Saša Bajt analyzed noble gases within Stardust samples. The research reinforces new findings that appears today in *Science* in which LLNL scientists discovered Stardust samples resemble asteroid materials.

The helium and neon isotope analysis suggests that some of the Stardust grains match a special type of carbonaceous material found in meteorites; hence both must have spent time in the same gas reservoir, which was close to the sun.

About 10 percent of the mass of Wild 2 is estimated to be from particles transported out from hot inner zones to the cold zone where Wild 2 formed. The Bajt paper concludes that this is how these grains with unusual isotope ratios go incorporated into a comet.

Earlier research showed that the comet formed in the Kuiper Belt, outside the orbit of Neptune, and only recently entered the inner regions of the solar system.

But during its lifetime, Wild 2 gathered material that formed much closer to the sun.

And the Bajt research, which appears in the Jan. 4 issue of the journal *Science*, shows that some of the particles in Stardust are consistent with the early solar nebula.

"The unusual isotope ratio of helium and neon demonstrate that materials in comet Wild 2 had been much closer to the young sun than previously expected," Bajt said.

Bajt, who studied tracks in aerogel caused by cometary particles rich in noble gases, used infrared spectroscopy, which is very sensitive in detecting organic molecules. She found none, at least not in the pieces of aerogel she examined. The group concluded that the carriers of the noble gases must be the refractory metal-metal sulfide-metal carbide grains, unlike what many expected would be a meteoritic Q-phase, which is known to be organic.

"That's the first-order finding of the paper, and it's a rather startling one," said lead author Robert Pepin from the University of Minnesota.

The second conclusion is that the ion irradiation is the only known mechanism that could load the grains (by ion implantation) to the very high concentrations based on mass density estimates from X-ray absorption spectroscopy by Andrew Westphal and his team at the Space Science Laboratory, UC Berkeley.

Noble gases are excellent tracers of contributions from various solar system volatile reservoirs and of physical processing of gases acquired from these reservoirs. Their elemental and isotopic compositions in primitive meteorites differ from those in the Sun. Planetary atmospheres display noble gas signatures distinct from both solar and meteoritic patterns.

X-ray absorption spectroscopy in the current study showed that the grains are composed primarily of high-temperature metal.

The X-ray and isotopic analyses point to gas acquisition in a hot, high-ion flux nebular environment close to the young sun.



On the cover: Combined long- and short-exposure images captured during the Stardust flyby of the comet Wild 2.
Credit: NASA/JPL

i.want ads

Due to the high quantity of ads and space limitations, these want ads have been abbreviated. For the complete ad listings, refer to the internal Website: <https://pao-int.llnl.gov/news/wantads.html> or for the latest pdf download and retiree information, see the external Website: <https://publicaffairs.llnl.gov/employee/>. Please note that these ads appear on the Web. **Date of ads: Approx. Jan. 15-22. Ads appear on the Web for seven days.**

AUTOMOBILES

1969 Pontiac GTO \$38,000 OBO. Metallic emerald green/2d Sedan engine: 400, trans: automatic, drive train: RWD. Working hood tach and hideaway lights, 400/400, MSD, HEI, Holley Street Avenger, his/hers shifter, Torque Thrusts, Hoosier tires, traction bars. 650-704-8666

1999 Pontiac Grand Prix GT \$5,000. 104k miles, new front brakes, leather seats, sun roof, service records. 925-443-1279

2000 Mercedes Benz S430 \$18,000. 98k miles, silver/black leather, nav system, self leveling suspension, cellular phone, heated seats, a/c, adaptive cruise control, multi disc changer. 925-606-5957

2001 Ford Mustang Convertible, \$8,500. 85k miles, grey leather, 5 CD changer, new tires, recently serviced, A/C, ABS, automatic. 925-784-1963

2001 Pontiac Bonneville SSEi - Supercharged \$7,500. Silver/leather, 3.8 liter V-6 Supercharged (240 HP), heads up display, dual driver settings, dual cabin climate, sunroof, cruise control, On-Star, on board information system, rear spoiler. 209-499-6607

2002 Mitsubishi Eclipse GS \$5,000. 96,400 miles, silver/black, CD player am/fm Kenwood stereo I-pod connector, automatic transmission w/trip-tronic shifter, aftermarket 16" rims, tinted windows. Salvaged title. 925-784-2662

2002 Pontiac Grand AM SE coupe \$4,900. 80kmiles, V6 3.4 L, Automatic, FWD, Air Conditioning, AM/FM Stereo, traction control, power steering, single compact disc, rear spoiler, power door locks, dual frt air bags, tilt wheel, ABS (4-Wheel). 510-786-7422

2004 Toyota Corolla LE \$12,500. 31k miles, 4dr, dark silver. 925-846-6069

2005 Mazda RX8 \$19,000 OBO. 7,500 miles, automatic w/paddle shift A/C P/W P/L, Titanium metallic grey/black.. 925-373-1522

2006 Chevy Silverado LT \$22,800. 16k miles, 5.3L V8 with flex fuel capability, extended cab, tow package, Bose, in dash 6 disc cd changer, tinted windows, bed liner, dual zone climate control. 925-963-9882

97 Chrysler Sebring LXI Coupe \$3,000. 118k miles, V6 2.5 liter, auto, all power, sunroof, rear spoiler, AR custom rims. New alt, rear brakes & rotors,

fuel pump. 209-295-4266

Honda Pilot spare tire \$100 OBO. Size T155/90D16. Excellent condition. 925 706-2337

BOATS

Rave Sports Blade tube \$30. Inflatable round tow-behind, one rider. New, unopened box. 925-648-0671

Whitewater Cat Raft \$3,300. 14' SOTAR Cataract, powder coated rowing frame, web floor, aluminum gear box. 925-447-9276

ELECTRONIC EQUIPMENT

4GB Zune MP3/video player \$125. black. 925-455-4484

Canon \$450. EF 17-40mm f/4.0 L USM zoom lens. Perfect condition—used only 2 or 3 times. 925-846-3653

D-Link wireless router \$25. DI-614+ 802.11 router. Works with cable modem or DSL modem to provide broadband access to multiple computers via wireless or wired network connection. Also functions as 10/100BaseT Ethernet switch. 925-454-8827

Gameboy Advance SP \$75. 5 games, w/case and charger. Good condition. 925-420-6521

GE heating and air conditioning unit, Fax /copier machine and Scanner Unit model AEE18DK. 4 months old, Brother 4750e Business class laser Fax/Copier and a HP ScanJet 5550c Scanner. 925-413-2171

HP inkjet printer 720c \$20. Includes all cables and new ink cartridge. 925-980-9336

LG cellphone \$25. LG VX3450, curvy and compact design, easy to use controls, speakerphone, a voice-command feature, external screen for caller ID. Charger and battery included, will need to activate cell through carrier. 510-792-1538

Panorama head \$225. For Virtual reality panoramas, Manfroto #303plusQTVRI, fits all digital cameras. 510-226-7440

Sony Rear Proj TV \$450 Mod KP43T75. 20" deep w/60-deg view angle. Component, 3 composite, & S-video in. Incl. remote & user's manual. 7 yrs old 925-240-7680

Toyota 6-disc CD changer \$200 OBO .Item NO. 08601-00871, cargo-mounted, 1 magazine included. Cord connections need to be purchased through Toyota. 510-792-1538

GIVEAWAY

19" color tube tv On curb during light mist. 925-455-6044

Free Horse Manure For garden or yard. You haul, I'll load your truck or trailer. No minimum. Located off Altamont Pass Rd on Dyer Rd. 925-443-7729

HOUSEHOLD

2 Bumbo Chairs (Lilac & Aqua), \$20 each. 2 Children's, great for helping babies 5 months and older learn to sit-up on their own. 209-895-4256

Aircraft protractor \$65. Mark 3-B, AAF Spec # 18-P-5. New, in box 925-443-7752

Antiques Zenith black face upright radio \$125, butcher scale \$95, pine commode \$125, oak highboy dresser \$160, mahogany player piano \$350, Columbia upright gramophone \$125, oak coffee table \$25, Victorian pump organ \$300, Victrola VV-VI \$175. 925-980-4198

Baby crib/day bed Million Dollar brand with mattress. Model number M5001A, oak finish. 925-413-2171

Dvd case and stereo cabinet \$50. Matching set, dark grey with black glass doors. The dvd case can be mounted on the wall. 925-858-6262

DVD Holder \$20. Can mount on the wall, good condition. 925-858-6262

Entertainment center, \$80 OBO. Honey maple, holds components, vertical holder for CDs, opening for 32" TV, hidden side doors to store DVDs, two storage doors. 510-792-1538

Entertainment center- \$125. Solid oak, sized for 36" TV. 925-337-3462

Fisher-Price Little People toys \$40. Ramps-Around-Garage, playhouse, Noah's ark, farm animal set, school bus. Extra characters included. 925-454-8827

Futon \$100. All wood, good condition. 925-606-7482

Futon w/Ottoman \$200. All wood, good condition. 209-679-1411

Granite slab - Verde Uba Tuba \$315 OBO. Approx. 36" x 115", located in San Jose, you pickup. Sample available. 510-792-1538

1 inch mini blinds Solid walnut. 52 inches wide X 56 inches tall, all mounting hardware. 925-443-7752

Holmes twin window fan \$25. Digital control, 16-hour adjustable timer, 3 speed settings. New, unopened box. 925-648-0671

Kenmore Dryer \$90. Large capacity, gas. 209-836-2389

Modern computer desk w/ detached file drawers \$110. Metal/black glass, lockable wheels, one drawer, one open storage area above drawer, pull out keyboard tray, and lower shelf for CPU. 28" deep x 56" wide x 29" high. Pedestal new in box. Located in Brentwood, you pick-up. Cash only. 925-640-5469

New Bathroom Vanity Top \$50. Orig box gone, can't return, never used. Estate by RSI Premium solid surface vanity top Halo bowl, ginger color, (neutral). 49"W x 22"D. 1 1/4" premium edge detail. Stain and scratch resistant finish. One-piece design. pre-drilled for 4" Center-set faucet. 925-989-7439

Recliner \$80 OBO. Medium brown tone, heat and vibrating function, rocker, side lever for pop out footrest. 510-792-1538

Roll top desk \$250 OBO. Oak roll-top computer desk, width 33' length 54' height 51' 925-449-0838

Sears Work Bench \$50. Steel 4 drawer, steel top work bench with vise 209-244-8241

Soccer ball humidifier \$20. Auto off function, 1 gallon tank capacity. New, unopened box. 925-648-0671

Solid wood storage cabinet \$45. Two pieces, 70" high x 18" deep x 29" wide. Top shelf 19" high, middle shelf 14.5" high. Below are 2 shelves behind doors, Livermore, you pick-up. Cash only. 925-640-5469

Sony TV \$125. 35", works great. 925-373-1522

Thomas the Tank engine set \$40 Take-along Thomas roundhouse, take-along Sodor mining mountain, 12 die-cast train engines/cars and extra track. 925-454-8827

Tinkerbell bathroom set \$10 Includes, curtain rings, garbage can, toothbrush holder, soap dish. 925-858-6262

Girls' twin bed and dresser \$250 headboard has a 3 cubbies and a shelf, and the base of the bed has 3 drawers for storage. Matching dresser, six good size drawers, mirror. 925-858-6262

Twin canopy bed frame \$50. Headboard has a heart in the middle and flowers around, canopy posts are crowns. 925-858-6262

MISCELLANEOUS

Audio books various authors (Koontz, Cornwell, Grisham, etc) Cassette:\$5 each or 5 for \$15. CDs \$15 each or 3 for \$30. 925 706-2337

Autotek100 watt (mono) car amp \$50 OBO. 510-792-1538

Barbie phone \$20. Keypads w/ phone sounds, voice mail messages in Barbie's voice, speaker phone, light-up antenna. Ages 3 and up. New, unopened box. 925-648-0671

Duplo Lego set \$30. Large bag, including some flexi-Legos. 925-454-8827

Frank Sinatra Doll \$25. First in series, "The Recording Years". Still in the box. 925-858-6262

George Strait, Josh Turner Tickets--Fresno Feb 1, 2 tickets available, at SaveMart Center in Fresno. \$64 each plus the ticket master fees, \$165 total. 209-204-6267

Golden State Warriors Home Games \$75 each, \$180 for all three seats per game (Except New York). Jan. 27 vs New York, 6 p.m., 1 ticket available only (\$50). Jan. 24 vs New Jersey, 7:30 p.m. Feb. 22 vs Atlanta, 7:30 p.m. Feb. 29 vs Philadelphia, 7:30 p.m. March 12 vs Toronto, 7:30 p.m. March 15 vs Memphis, 7:30 p.m. 707-373-7401

Ladies diamond ring and Amethyst ring 14K gold engagement ring with 1/4 carat round diamond. \$100 OBO Ladies 14K gold, 1 carat heart shaped Amethyst ring with small diamond accents on each side of heart. \$80 OBO 510-792-1538

Manufacturers RV Show at Alameda Fairgrounds - 4 tickets \$15. RV show is 1/19-1/27/08. \$15 for all 4. 925-648-0671

Saddle \$500 OBO. Used, very good condition. 925-449-4981/925-487-1404

Salon type hair dryer \$75. Kenmore 50's vintage, pink, 3 temp settings, collectible item. 925-443-7752

Shane Co. jewelry \$25 gift card \$10. Stores located throughout Bay Area or visit Website. 925-648-0671

Soix automotive hard seat gringer \$550. Many extras, case. 925-443-7752

SpongeBob DVDs \$5 each. Eleven total, can send titles. 925 706-2337

Toddler Slide \$25. Plastic, yellow and blue. Perfect for little ones.925-858-6262

Victorian Doll House \$500. 13 rooms, 16 double hung win-

i.want ads

Due to the high quantity of ads and space limitations, these want ads have been abbreviated. For the complete ad listings, refer to the internal Website: <https://pao-int.llnl.gov/news/wantads.html> or for the latest pdf download and retiree information, see the external Website: <https://publicaffairs.llnl.gov/employee/>. Please note that these ads appear on the Web. **Date of ads: Approx. Jan. 15-22. Ads appear on the Web for seven days.**

RECREATION EQUIPMENT

Big Agnes Emerald Tent \$425. SL-3: 3-person super light/3 season. Foot print and gear bag as well. Brand new. 925-200-8377

Exercise equipment \$125. Squat rack, lat pull, incline bench, bench press, hamstring curl, leg curl, Olympic bar, misc. weights. 925-980-4198

Punch Bag Wanted, something I can hang up off a hook. 925-960-0654

RIDESHARING

Carpool Brentwood/Oakley: Work hours 7:30 to 4:30, Mon-Fri. Leave from carpool lot in Brentwood at 6:30. 3-9944

Carpool Walnut Creek/Concord/Pleasant Hill, 9/80 AWS, leave Rudgear @7:30, leave LLNL @5:30. Times flexible. 925-423-4048

Manteca rideshare \$100/month. I'll drive. Manteca to main site. 7. to 3:45, Monday-Friday. Must be willing to ride on Patterson Pass Rd. Leave Manteca approximately 6. 209-470-0928

Modesto \$140 month. 4-10s, 6 to 4:30, Mon.-Fri. 209-667-2365

Montclair \$155. Eleven passenger luxury van, captain style chairs w/reading lights. AWS call 4-6215 for more details. 510-531-4399

San Francisco vanpool \$190/month. Riders wanted, leave SF at 6:45 and return at approximately 5:45 daily. Leave LLNL at 4:30. Drivers are compensated. 415-244-4460

San Francisco Rider needed, 9/80 alternate work schedule, 7 to 4:30 Mon-Thu, Fridays 7 to 3:30, every other Friday off. Leave SF at 5:50 arrive 6:45. Leave LLNL 4:25 return 5:30. 415-673-9546

San Mateo Vanpool, work hours 8: to 4:45. Leave from carpool lot at 7 under freeway Hwy 92 at Hwy 101. 650-952-6186

Modesto vanpool Modesto, leaves from Home Depot at 6:35 a.m. and leaves Lab at 4:45 p.m. 8 -4:45 work schedule five days a week. 209-576-0217

Fairfield-Vallejo-Benicia vanpool: Leave Fairfield-Vallejo-Benicia. 7 - 4:45 9/80's both schedules. Contact Mark 707-246-4810

Walnut Creek/Concord Person for a 4-person carpool. Arrive at LLNL at 8 and leave at 5:30 Times are flexible. 3-4048

SHARED HOUSING

Furnished Room \$650. Available now. Cable in room, wireless DSL internet, & utilities included. Rent includes use of backyard, workout room, laundry, fully appointed kitchen, & living areas. 2 miles to LLNL. Court location (N. Vasco & Scenic area), smoke & pet free. \$25 deposit. 925-454-9224

Room \$500. 3bd/1ba house, quiet, residential neighborhood, walking distance to shopping and community center. All house privileges, All utilities included, except gas & electric shared, no pets or smoking. Share with professional in her 30s with small friendly dog. 925-922-4786

Room \$700. Brentwood, own bath, includes Bi-weekly cleaning of house and bathroom. Access to all facilities, no smoking, no pets. Utilities included. 925-516-2921

Room \$650. Livermore, available now, fully furnished apt w/ all amenities. 1 room avail w/ private full B/A. Female preferred. No pets. 422-9433

Room \$650 Livermore, heat, electricity, garbage, water, cable service and local phone included (not long distance). Separate bath with kitchen and living room privileges. No smoking. No pets. Lab employee preferred. 925-454-9329

Room \$350. Stockton, Quail Lakes, I-5/March. Optional furnished, whole house privileges, close to Delta and UOP. LLNL carpool available. \$350 and 1/2 util. No pets. 925-989-7439

TRAILERS

Trailer \$4,500 OBO. 1991 17' Wilderness, all the essentials. Located in Salida. 925-642-5339

Trailer \$18,000. 2004 Desert Fox 21SW Toy Hauler, Onan generator, fuel station, used less than 10 times, stored inside. Excellent Cond. 925-516-8339

TRUCKS

2001 Ford Ranger XLT \$10,500. 66k miles, 4.0L V6, 4X4, Super-Cab, Auto, A/C, new tires, CD player, power windows, bedliner, 4.10 limited slip, tow hitch 925-373-9224

Snow Tire Chains \$30. Fit LT255/70R16, 235/60R16, & more. Peerless Cat. #222155. Never used. 510-882-0437

Stock Tires and Rims \$350 OBO. 2004 Toyota Tacoma, 2 tires have 5/30 and 2 have 6/30 tread left. 209-832-5462

Newsline want ads on the Web

Starting with next week's Friday, Feb. 1 edition, *Newsline* becomes an all-electronic Web-based publication. This will mean some change to the appearance of the content. Because of space limitations in the printed edition of *Newsline*, only a selection of edited want ads could be published each week. Now that *Newsline* is electronic, it no longer makes sense to prepare want ad pages when employees and retirees can access the complete unexpurgated list of want ads from the Web: <https://publicaffairs.llnl.gov/employee/>

The front page of the new online *Newsline* will have a button that will direct users to the complete want ad listing. The procedure for submitting ads remains the same for both employees and retirees.

Tonneau Cover \$700 OBO. Silver locking Snug Top, for 2004 double cab Toyota Tacoma. 209-832-5462

VACATION RENTALS

Arnold mountain cabin 4 bdrm 2 bath with 600 sq. ft. game room. 20 mi. Bear Valley skiing, 2 hours from Livermore, week-day snow season dates available. 925-245-1114

Dodge Ridge Cabin \$225/wknd. 3 bdrm/2 bath, fireplace w/wood, microwave, pool table, level cleared access to covered parking, near skiing. 925-449-5513

Kona Hawaii Tropical Home Secluded, fully-equipped, near Kona town, beaches & farmers market. 2,300 sq ft on 2 levels with high ceilings, 5 bdrms/3 baths; sleeps 12. Penthouse 3 bdrms/2 baths avail at lower rate. WiFi. Nonsmoking. Last min & Lab discounts available. 415-377-5361

Maui, HI Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island (Molokai and Lanai) view with oceanside pool and BBQs. 925-449-0761

Santa Cruz Cottage 2 bdrm. 2 bath, 4 blocks from Twin Lakes beach near Santa Cruz county harbor. 925-245-1114

Ski Cabin \$700 week. Pioneer, Mountain, close to Kirkwood ski resort. 145-120 per night 700 wk 4 bdrm 2.5 bath, sleeps 10 -12, with 4450 sf game room, 6 acres w/ spring feed pond, large deck. 925-784-3945

South Lake Tahoe Chalet 3 bedroom 2 bath, newly remod-

eled kitchen, nicely furnished, all amenities, close to all skiing, some weekends still left. 209-599-4644

Tahoe/Truckee Mountain Home 3 BR-2 BATH, fully furnished, forest setting, 2 Queens, 1 Full, 3 Twins + more, cable, decks, garage + ample parking, hot tub, close to town and Northstar + all N. Shore resorts. 925-784-0245

Wine Country Rental \$150/night Monte Rio, wine country, heart of the Russian River Valley. 3 bedrooms, 1.5 baths, sleeps 6, remodeled kitchen, fresh interior paint. 15 minutes to Sonoma County beaches, wineries, and Armstrong Woods State Park. 925-513-4767

WANTED

Computer desk and chair. 925-420-6521

Refrigerator Need nice full size w/ freezer, in working condition. I will pick up from Livermore area. 925-922-2081

Moving boxes Moving 2/2/08 209-747-0886

Nintendo DS. 925-420-6521

Skis, boots, poles Skis (size 150-160), boots (woman's size 6), and poles for a beginning skier. 209-832-5462

Twin Beds Need two, mattresses not needed 925-420-6521

Used VCR for TV control, playback only. Will pay \$15 to \$25, based on condition. 925-485-1988

Karl van Bibber to serve as vice chair of APS section

By Nancy Garcia
Newsline staff writer



Karl van Bibber

Karl van Bibber, chief scientist in the Laboratory's Physical Sciences Directorate and self-professed "science junkie," is excited about his new role as vice chair of the American Physical Society's (APS) California Section.

He looks forward to having a broader impact on issues such as science literacy and awareness.

He recently spent five years as deputy director of the Lab's Science and Technology Office and Laboratory Directed Research and Development Program, helping to guide the Lab's portfolio of early-stage exploratory research projects.

"I loved that job — I got to have an awareness of the breadth of science going on at the Lab that was a mile wide and inch deep," he said. "In the afternoon, I'd put on my tennis shoes and go meet with the researchers in their laboratories to talk with them and see how things were going."

He was asked to consider serving on the California Section's executive committee by the Laboratory's Don Correll, who helped establish the section eight years ago. One of eight regional sections nationwide, its role is to advance and diffuse the knowledge of physics. The section hosts multi-disciplinary meetings up and down the state so scientists can affordably meet in person with their colleagues.

Nearby meetings can be especially important for younger physicists who have limited travel budgets, van Bibber points

out. He adds that the section just hosted a meeting in Berkeley that was considered a great success. The Laboratory's Hope Ishii, a materials scientist who helped devise ways to isolate comet dust from the Wild 2 mission for analysis, spoke on a panel that was rounded out by Nobel Laureates.

"Her talk was a smash hit," he recalls. The meeting drew some 200 attendees.

The newly elected executive committee also includes member-at-large Lin Yang from the Laboratory, and a former Laboratory scientist, Jennifer Klay. She continues to collaborate on relativistic heavy ions from her new job at the California Polytechnic State University, San Luis Obispo.

Van Bibber received bachelor of science degrees in physics and mathematics and his Ph.D. in physics from MIT. He completed post-doctoral studies in nuclear sciences at Lawrence Berkeley National Laboratory. He was an associate professor of physics at Stanford University from 1980–85, and has been a senior physicist, group leader and deputy director of LSTO at the Lab. He became a fellow of the APS in 2007 and also is a fellow of the American Association for the Advancement of Science.

He previously served on the APS Division of Nuclear Physics Program Committee. His distinctions include publication of more than 100 research articles in scientific journals and having an endowment created in his name at Stanford by an anonymous industrialist. The first two Karl van Bibber Physics Postdoctoral Research Fellows were announced in 2007.

Elections are key to Pakistan's future, experts agree

By Stephen Wampler
Newsline staff writer

U.S. and Pakistani policy makers should strive for National Assembly elections next month that are acceptable to the people of Pakistan, a leading expert told Lab employees last week.

Ashley Tellis, a senior associate at the Carnegie Endowment for International Peace, offered this view during a Jan. 17 seminar focusing on Pakistan, sponsored by the Center for Global Security Research (CGSR).

The seminar was held to address the issue of Pakistan's transition from military to civilian leadership, as well as policy options for the United States and Pakistan over the next few years.

Tellis was joined in the discussion by former Pakistani Brig. Gen. Feroz Hasan Khan, who has worked at the Brookings Institution and is now a professor at the Naval Postgraduate School. Neil Joeck, a senior fellow at the Lab's CGSR and a former National Security Council staffer, moderated the panel.

"What I try to tell them (people in Washington, D.C.) is, 'You need to lower your expectations somewhat,'" Tellis said. "This is not going to be an election of the kind which occurs in Switzerland or Great Britain."

The goal for the election, according to Tellis, should be one in which the process and outcome are ultimately acceptable to the Pakistani people. "It must have some semblance to what a fair outcome would be."

An election unacceptable to the people of

Pakistan would "most likely" lead to serious civil disorders, Tellis believes, because of the frustrations with eight years of military rule, President Musharraf's constitutional manipulations and other tumultuous events, including the assassination of opposition leader Benazir Bhutto.

Major street protests or disorders would not only be bad for Pakistan, but would have the potential to be hurtful to the United States for two reasons, Tellis stated.

First, to the extent that the Pakistani army becomes involved in maintaining law and order, this effort will distract from its counterterrorism mission, which is a priority of the U.S. government.

"The idea that the army might have to keep law and order and might have to shoot civilian Pakistani demonstrators is utterly distasteful," Tellis said. "It is particularly distasteful to the army because it sees itself as a national unifying institution."

Second, significant civil unrest would likely create "fissures" between Musharraf and the new Pakistani Army chief of staff.

"There has been a history of the Pakistani army telling its former commanders-in-chief, 'Sir, thank you very much for your service to the nation; it's time to accept this plane ticket out.'

"And that is something that would not be in our interest because Musharraf, for whatever his failings, has been a good ally of the United States.

"There are lots of folks around who think now is the time to jettison Musharraf," he said. "My view is that there will be a time for decisions about Musharraf's future. That time is not now."

While the counterterrorism performance of the

Pakistani army has not been as effective as desired, Tellis says: he believes this is because of "serious capacity limitations" rather than mendacity or some other reason.

"Their performance really varies, depending on the group they are going after," he said.

The army has been "very good" at dealing with sectarian groups, Al Qaeda and the new Pakistani Taliban but considerably less effective in policing the Afghan Taliban and the pro-Kashmir groups, according to Tellis.

The prospect of widespread unrest in Pakistan also raises concerns about the security of the nation's nuclear weapons.

Fellow panelist Khan noted that in the wake of the Pakistan government's clearing of the Red Mosque in Islamabad in July 2007, there has been a major ramping up of violence in the nation.

While there were only six suicide attacks in Pakistan in 2006, last year there were 56 suicide attacks, along with 480 improvised explosive devices and bomb blasts, mainly directed at Pakistani army units responsible for clearing the Red Mosque. Most of the attacks came after the mosque was cleared.

In addition, Bhutto's return to Pakistan in October was marred by a failed assassination attempt that killed more than 100 people and wounded hundreds more. She was then killed as a result of a second successful attack in December.

Khan told the audience that he thought the danger of loose nuclear weapons would arise only if there were a disintegration of the Pakistani army. Otherwise, he was confident that Pakistan's nuclear arsenal would be safe and secure.

Retirees' Corner

PEOPLE NEWS

Retirees' Travel Group presentation schedule

Feb. 26	Driving to Colorado — Miles and Jackie Loyd
March 25	Australia: The Easy Trip — Steve Massey
April 22	Waterfalls and Old Forests in the Oregon Cascades — Bob and Juanita Berlo
May 27	Cities and Mountains of Switzerland — Margo and Arnie Kirkewoog
June 24	North Pole, South Pole, and Seven Continents In between — Frank Rainer

Sandy and Tom Barlow moved to Lincoln, Calif., in 1999 and are enjoying traveling to Scandinavia, Scotland, Ireland, Eastern Europe, Australia, New Zealand, Canada and other places across the United States. There is a good representation of the Lab in Lincoln: **Barbara Bryan, Jim and Pat Page, Frank and Suzanne Tokarz, Paul and Judy Brown, Bill and Madeleine Jackson and Betty Stewart.**

Sandy is involved in church work and has developed an interest (and talent) in quilting and spinning. Tom becomes president of American Society of Mechanical Engineers (ASME) beginning in June 2008 and is on the Washington State University's External Advisory Board for the School of Mechanical and Material Engineering. (See unedited version on Web page.)

Pat (G Division, 1990) and **Jane** (Engineering, 1993) **Ellis** took a long, enjoyable trip to Russia. They saw the Hermitage Museum, Catherine's Palace, Peter and Paul Fortress and St. Isaac's Cathedral. Pat and a friend were almost robbed but realized what was happening in time to save their possessions.

They took a city tour of Helsinki and saw the boat come in for the king and queen of Norway. Security was nothing like in the United States. The next day they flew into Ivalo at the neatest small airport they had ever seen. For dinner that night they had their first experience with eating reindeer. The next day they boarded the Coastal Steamer and saw some beautiful country.

In Bergen, they learned about the old and new Norway. They traveled from Bergen on

to Oslo by bus and by train and saw beautiful waterfalls and amazing tunnels. In Norway, they paid \$22 for a hamburger and fries, which is something they all wanted after all the fish, cucumbers and reindeer.

Evelyn Heald (Mechanical Engineering and Physics, 1993) and her son Vince of San Diego took a wonderful two-week adventure in Italy. They went to Lake Como and then to Castellamonte, which is north of Torino, where Evelyn's maternal grandfather was born and drove to the nearby Alps surrounded by snow to visit the home where he lived and met several nearby neighbors. Their next visit was Florence, where they found themselves in the midst of a Chianti wine festival. The medieval city of Assisi was next. In Rome, they were able to spend a memorable and delightful evening with cousins who live in the Testaccio section of Rome.

The **January retirees' luncheon** was Jan. 16, with LLNL research physicist **Dave Dearborn** speaking about "Using a nuclear explosion in space to divert or fragment an asteroid so that it poses little or no danger to Earth."

The dinner-dance is Feb. 9. If you are not a member, you can get the form at <http://www.llnlretires.org>, sign a waiver and mail the form with a check. The annual Ravenswood picnic is Wednesday, June 18.

New officers for 2008 are: **John Pitts**, chair; **Chuck Meier**, vice chair for speakers; **Bob Hickman**, treasurer; and **Harold Pfeiffer**, secretary. See message from John on the Web page.

The Lab has decided, as a cost-saving measure, to terminate the publication of the paper version of *Newsline* effective February. Publication will continue online, but there will be no paper version mailed to homes. Hence, we are including the entire LLNL Retirees travel group's 2008 schedule. From January through June, the travel group will meet on the fourth Tuesday at 2 p.m. in the Livermore Police Department Community Room, 1110 South Livermore Ave.

Send any input to Gus and Jane Olson. e-mail: AugustO@aol.com or JaneRubert@aol.com. Snail mail address: 493 Joyce Street, Livermore, CA 94550.

in memoriam

Norma Jeanne Motta

Norma Jeanne Motta, a native of Bristol, R. I., and a resident of Livermore since 1952, died Jan. 7 in Walnut Creek. She was 79.

Motta was a telephone operator at the Lab for 14 years, retiring in 1984. She was a member of the Retired Telephone Operators. She also was a member of St. Michael's Catholic Church, where she taught religious education and served as former president of the school's Parent Teacher Association.

Motta is survived by her children: JoAnn (Marshall "Mo") Motta Owen of Livermore; Patricia Scoville of Minnesota; Brian Motta of Livermore; Phillip (Heather) Motta of Truckee; five grandchildren, and seven great-grandchildren. She was preceded in death by her husband Augustine "Bud" Motta in 2000.

Services were held in Livermore. Contributions in Motta's name can be made to the American Diabetes Association or to St. Vincent De Paul Society care of St. Michael's Church in Livermore.

New Website for future electronic
Newsline:
<https://newsline@llnl.gov>

NEWSLINE

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For an extended list of Lab beats and contacts, see <https://publicaffairs.llnl.gov/>



A San Joaquin kit fox in its grassland habitat.

Photo by Dr. Lloyd Glenn Ingles © California Academy of Sciences

Fox ID guide

Sometimes a fleeting glimpse of a fox is all you get before it quickly disappears into the landscape. There are three possible fox species that you might see at the LLNL sites: the gray fox, the non-native red fox and (although much less likely) the San Joaquin kit fox. Here are some tips to quickly distinguish one fox from another:

Look at the tail:



Credit: Gerald and Buff Corsi © California Academy of Sciences

Red fox: A white-tipped tail unlike the black-tipped tail of the kit and gray fox; also, red foxes are rusty-colored.



Credit: Don Getty

Gray fox: A black-tipped tail with a distinctive black stripe that runs along the top; gray foxes are much larger than kit foxes.



Credit: Lloyd Glenn Ingles © California Academy of Sciences

Kit fox: A black-tipped tail with no stripe and a tan (summer) to grayish (winter) coat; they are much smaller than red and gray foxes.

In search of the elusive San Joaquin kit fox

The San Joaquin kit fox, a charismatic federally and state protected fox, is a native to this area yet presents wildlife biologists and other conservationists with a challenge in ensuring its recovery. This issue is quite relevant to the Lab and its community, as this area is both native habitat for this

fox and is faced with balancing human development with species recovery. The federal recovery plan for this species recommends actions to encourage owners of large land tracts within the San Joaquin Valley to cooperate with recovery efforts. Due to the fragmentation of private and public lands in the valley, voluntary cooperative management is seen as the only strategy that would significantly improve the overall habitat for the kit fox.

Distribution and conservation

The San Joaquin kit fox inhabits grasslands and scrublands and was once widespread throughout most of the San Joaquin Valley. With the significant reduction and fragmentation of these habitats, the current range of the kit fox is largely reduced, and its distribution is sparse in the northern portion of its range, an area that includes Site 300. Although Site 300 provides highly suitable habitat and abundant ground squirrel prey for the kit fox, there are no known observations of this species on site. However, historic populations may have occurred at Site 300. Prior to the 1930s, the San Joaquin kit foxes were seen in the San Joaquin Valley from Southern Kern County to eastern Contra Costa and Stanislaus counties. By 1930, the kit fox range was reduced by more than half as a result of agricultural use, industry and urban development. The largest remaining portions of its range occur in the southern and western parts of the San Joaquin Valley. Kit foxes are now very rare and have suffered significant population declines in other parts of their historic range.

The San Joaquin kit fox is listed as a federally endangered (1967) and state threatened (1971) species, providing it with federal and state protection under the Endangered Species Act. In addition to habitat encroachment and fragmentation, threats to kit foxes also include competition and predation from other species, such as the red fox (nonnative), coyote, domestic dog, bobcat and large raptors.

Natural history

The San Joaquin kit fox is a small brown-to-grayish fox with long legs and large ears. It is the smallest member of the *Canid* family (dogs, wolves and foxes) in North America, standing about 9 to 12 inches tall and weighing about 5-10 pounds.

These foxes are active year-round and are mostly nocturnal, but can be seen during the day. Kit foxes use dens for reproduction (pupping) and protection. They dig their own dens or modify burrows of other species like badgers, ground squirrels and coyotes. They also may den in human-made structures, such as culverts or drainpipes small enough to keep out coyotes. Active dens are often littered with prey remains, droppings or fresh tracks. One fox uses several dens throughout the year, which may be a method to avoid their predators.

The kit fox can breed at one year old. Mating occurs between December and March, and litters of two to six pups are born about 48 to 52 days later. The pups begin to disperse from their parents in another five or six months in



By Laura Burkholder

late summer. On occasion, one or more of the pups will stay with their parents through the year and help raise the next litter. Kit foxes in the southern portion of their range eat mostly kangaroo rats, pocket mice and other nocturnal rodents, while those in the northern part eat primarily ground squirrels.

Kit foxes at Site 300?

Is it possible that the small fox you briefly glimpsed flitting through the adjacent grasslands near Site 300 was a rare sighting of the San Joaquin kit fox? LLNL wildlife biologists have conducted surveys for this species at Site

300 since the early 1980s. In the 1980s and early 1990s, kit foxes were observed in several areas near Site 300, including Carnegie New Town and the Altamont Pass area. The closest documented location was within two miles north of Site 300. Surveys conducted by LLNL wildlife biologists in the 1980s found several potential kit fox dens at Site 300, suggesting the occasional use of the site by kit foxes for denning and foraging, but providing no direct evidence. So while the San Joaquin kit fox has not been positively documented at Site 300, the potential for its occurrence onsite certainly exists. Because of low numbers, kit foxes can be difficult to detect in their northern range. LLNL wildlife biologists remain committed to protecting San Joaquin kit fox habitat and will continue searching for this unique species at Site 300, for the kit fox just may turn up on site someday.



Credit: Lloyd Glenn Ingles © California Academy of Sciences

A young kit fox practices handling its prey.

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